THE EFFECT OF HUMAN CAPITAL INVESTMENT AND MOTIVATION ON MINERS' PRODUCTIVITY AT A SOUTH AFRICAN PLATINUM MINE

Lucky Boy Tebogo Makhubedu, Eveth Nwobodo-Anyadiegwu and Charles Mbohwa
University of Johannesburg,
South Africa.

ABSTRACT

Human capital investment and employee motivation are mechanisms that mining companies can use to enhance labour performance, improve organizational productivity, optimise profitability, and achieve long-term competitive advantage. This paper investigates the effects of human capital investment and motivation on mineworkers' labour productivity at a South African Platinum mine. This study adopted a quantitative research strategy. A structured questionnaire was used to survey (n = 292) miners. SPSS version 23.0 was performed to measure the relationship between miners' perception of subsets of human capital investment and motivation versus identified key production variables from two distinctive reefs – the Upper Ground (UG2) Reef and Merensky reef. The statistical findings corroborated the two hypotheses tested.

***Keywords**: Human Capital Investment, Motivation, Productivity, Mining, South Africa*

INTRODUCTION

The mining and manufacturing industries have clear parallels in that both sectors focus on productivity. However, this intense focus – and the intense pressure to meet monthly production targets within specific time limits – tends to negate the miners' ability to perform, leading to reduced morale and motivation within the workplace (Masia and Pienaar, 2011, p. 1). The literature (Adekola, 2014; Awan and Sarfraz, 2013; Boroujerdi, Siadat, Hoveida and Khani, 2014; Olayemi, 2012) reveals that an investment in human development and in motivational incentives has a positive impact on labour performance. Despite this, the South African mineral exploration industry is confronted with labour unrests that hamper the industry's capacity to maintain overall productivity and safety standards (Motsoeneng, Shultz & Bezuidenhout, 2013, p. 1).

In 2012 and 2014, sudden and unprotected industrial unrest and a wave of violence disrupted mining production across South Africa. Consequently, the mining sector had a production deficit of over R15 billion in the financial years 2012 to 2013. Furthermore, the downgrading of the country's credit rating was a result of mining personnel (miners) downing tools (South African Institute of Race Relations, 2013). This clearly shows how the mineral exploration industry and the South African labour market are not immune to global economic challenges.

According to Awan and Sarfraz (2013, p. 1), companies ought to nurture and develop the skills of their workforce, increase investment in human capital labour market, provide learning opportunities within the workplace, and redress unfairness in employment prospects. Furthermore, because of the dangers linked with the mineral exploration industry, ensuring that the miners are motivated should be a priority to mine management, as this would reduce labour unrest in the mining industry (Kuranchie-Mensah & Amponsah-Tawiah, 2016).

The human capital approach has to do with a set of human attributes that people own: work experience, skills, knowledge, health, and intangible qualities such as self-confidence, responsibility, and motivation (Shomos, 2010, p. 1). The concept of human capital regards human labour as a product that can be bartered in the acts of buying and selling (Marimuthu, Akokiasamy & Ismail, 2009, p. 267). Employees offer their operational services to organizations for which, in turn they are compensated.

Motivation comes from the word 'motive'. 'Motivation' is a systematic method of invigorating the needs of employees, influencing their behaviour, and persuading them to perform, by creating a workplace that is suitable to work in (Cetin, 2013, p. 71). Motivation is the inner (intrinsic) drive that enables an individual to make decisions, take action, and achieve improved labour performance (Chaudhary & Sharma, 2012, p. 29).

It is essential to acknowledge that the mineral exploration industry is performance-driven because of the type of work (extraction of essential minerals and ore) done by miners. Hence, labour productivity is a significant factor when optimising organizational profitability (Cetin, 2013). This further heightens the importance of human capital investment and employee motivation in improving labour and organizational productivity (Muogbo, 2013). Conventional measures of performance in operational management are productivity and efficiency (Greasley, 2010, p. 511). Productivity can be defined by the value of the output (end-product) divided by the input (human capital and tangible resources) (Heizer & Render, 2006, p. 15). Improved productivity is a result of increasing output without a proportionate increase in human capital and physical resources, or a reduction in human capital and physical resources without a proportionate reduction in output (Greasley, 2010, p. 511).

According to Greasley (2010):

> "Efficiency is defined as a measure of the use of capacity remaining after the loss of output due to planned factors such as maintenance and training". (p. 512).

Previous studies (Marimuthu et al, 2009; Awan & Sarfraz, 2013; and Boroujerdi et al., 2014) have generalised the assumption or expectation that human capital investment and motivation impact positively on labour performance. Most research studies indicate that training and motivation affect productivity and not the other way around (Hansson, Johanson & Leitner, 2004). This has consistently been proven by researchers (Raineri, 2016; Kuranchie-Mensah and Amponsah-Tawaiah, 2016); but whether it applies to miners' in South Africa remains to be tested empirically. As a result, failing to account for unobserved or external factors, leads to underestimating the impact of human capital investment and employee motivation on productivity (Colombo & Stanca, 2008). There have been calls made by some scholars for the need to study the simultaneous contributions of both the human capital and motivation to performance relationship (Raineri, 2016, p. 4).

Emerging from the foregoing discussion, the main objective of this study was to empirically investigate the effect of human capital investment and motivation on miners' productivity at a South African platinum mine.

LITERATURE BACKGROUND

An American economist, Theodore Shultz, first coined the term 'human capital' in the 1960s. He hypothesised that investing in physical capital by spending on machinery might have significant parallels or similarities in human capital through spending on education (learning) and training (skills development) (Boroujerdi et al., 2014, p. 1). Schultz (1961:25) was under no illusion that people would find the idea of referring to human beings as 'capital' and using education and training as the medium of investment difficult to accept. Schultz suggested that economists ought to reappraise the notion of 'education' as a constituent of human capital, rather than as a product for consumption.

Schultz (1961) stated that:

> "Economists have long known that people are an important part of the wealth of nations. Measured by what labour contributes to output, the productive capacity of human beings is now vastly larger than all other forms of wealth taken together. What economists have not stressed is the simple truth that people invest in themselves and that these investments are very large". (p. 25).

HUMAN CAPITAL (HC)

Human capital is receiving broader attention with increasing globalisation and job market saturation caused by the current decline in many world economies. A strategic plan for enhancing personnel productivity is to work towards driving added value for the company (Marimuthu et al., 2009, p. 1). In business (Awan and Sarfraz, 2013), capital is required in order to keep it afloat (p. 1). Organizational assets, bank accounts, physical resources etc., are referred to as capital, but in the midst of it all, lies human capital. Human capital plays a key role in improving employee productivity (Heizer & Render, 2006, p. 16).

Human capital may be acquired by means of education (learning), training (skills development) and healthcare (health and safety) that will result in enhanced knowledge, skills, capabilities and values, leading to the accomplishment of employee loyalty, satisfaction and high levels of employee productivity, while enhancing overall business, operational performance and attainment of optimal profitability (Marimuthu et al., 2009, p. 267). Boroujerdi et al. (2014, p. 1) concur with the idea of Marimuthu et al. (2009, p. 266) by indicating that human capital deals with the higher value that workers provide for the company to achieve competitive advantage. According to Boroujerdi et al. (2014, p. 2), the dimensions of human capital are required for workers to function and perform at their best. The advantages of training, education, and healthcare are improved labour performance, enhanced organizational productivity, and a possible increment in pay after the completion of the education and training (Dae-Bong, 2009, p. 1).

According to Barr & Cook (2009, p. 19), education is an essential tool for any skills development. The quality of education for black South Africans is regarded by most to be unsatisfactory, unfitting, and inexcusable (Cairns, 2015, p. 2). In every country, education relates to the employability of the population, as it defines the category of human resources and the quality of knowledge and skills that a particular country has. Education refers to acquiring knowledge and skills through educational systems that increase the probability of population employability (Mbwaalala, 2013, p. 8). The education system covers an extensive range of indirect benefits that encourage change in the attitude of people towards their occupation and the community in which they live. Through education and training, it becomes easier for people to develop new skills. Education has a positive influence on how people perform and on how efficient organizations are – and it can fuel the economy. Education also contributes to the number of knowledgeable people, increases their earning capacity, enhances the productivity of the workforce, and reduces unemployment (Olayemi, 2012, p. 299).

The fundamental challenge that the Republic of South Africa's labour market faces is an overwhelming increase in the unskilled labour force. The government of South Africa, aiming to redistribute the wealth of the country more impartially, has pushed for an escalation in the development of skilled labour (Saunders, 2013, p. 2). Saunders (2013, p. 2) reported that unskilled labour accounted for 28.9% of all labour in 2012.

In 1998, through administering the Skills Development Act (SDA), amended in 2003 and 2006, the government of South Africa sought to educate and develop the workers who were unskilled. The Act strives to nurture and develop the skills of the workforce, increase investment in human capital, encourage employers to offer learning opportunities within the workplace, and redress unfairness in employment prospects. The primary aim of the Skills Development Act No. 97 of 1998 (SDA) is to ensure that the South African workforce goes through rigorous training to develop its skills, thereby improving employee productivity and quality, delivering social services within the workplace, and promoting self-employment. The act also permits management to use their workplace as an active learning environment and to provide workplace experience to new workers joining the labour market (Bhoola, 2011).

To produce a unique and valued staff, training and personnel development is crucial within an organization (Nyamubarwa, Mupani & Chiduuro, 2013, p. 119). Training and employee development can help individual workers to make better decisions, improve their confidence and problem-solving skills, increase their job satisfaction, and help them better to manage both their own stress and frustration and tension and conflict within the organization (Rusinovci, 2015, p. 106).

Olayemi (2012, p. 299) suggests that healthcare comes after education in the advancement of human development. There is a reciprocal connection between healthcare and education. Education promotes the general development of the different skills required to transform a society and to meet high health levels; education champions transformation in people's attitudes and habits. Olayemi (2012) further proposes that, to make the best use of a nation's labour force and resources, it is vital to have a healthy population, as it is an important part of the development of employees' abilities. A decline in good health

will result in low productivity and high health-care costs. The Occupational Health and Safety Act (OHSA), promulgated in 1993 to guarantee the health and safety of people at work, relates to their use of operating equipment and machinery. Furthermore, the Act ensures the safety of other employees against threats to their health through other workers' activities in the workplace (Bhoola, 2011).

Awan and Sarfraz (2013, p. 1) maintain that human capital can help organizations to grow and reach their maximum potential. Human capital investment goes beyond just developing the workforce to improve labour and operational performance; it makes employees feel that they have some social status, and that they are valued and recognised within the organization (Dubrin, 2009, p. 377). Empowered employees, through human capital, can execute their tasks more effectively and efficiently, be more knowledgeable, enhance product quality, and support the company's innovative developments (Bashir, Ahmed & Hashim, 2012). A knowledgeable, highly–skilled, and healthy workforce is essential to any organization and country. Any mismanagement of human development, any compromise in health and safety, and any mistreatment or abuse of workers is harmful to organizational success. The primary goal of organizations is to improve labour performance and to achieve high levels of productivity, optimise profit, and achieve long-term competitive advantage. Therefore, emerging from the foregoing discussion above, we can hypothesise that:

$\mathbf{Factor_1}$: Human capital investment as a factor of productivity.

H_1: The more mineworkers are knowledgeable, highly–skilled, and healthy within the mining company, the higher the levels of labour and organizational productivity.

The global economic environment is changing rapidly. According to Ravi (2015, p. 22), the nations of the world have begun to embrace free market capitalism, leading to international markets being highly competitive. Responding to present-day economic changes in the international business market, most companies have adopted the notion that investing in employees' abilities leads to achieving a reputable, competitive advantage that will enhance workers' motivation, employee empowerment, job satisfaction, productivity, and economic growth (Olayemi, 2012, p. 300). Investment in human capital has proved to be fruitful in other parts of the African continent. Nigeria, for instance, has recently surpassed South Africa as the continent's largest grossing economy; and in the global economy ranking it comfortably occupies the 26th position. This is because the rebasing of Nigeria's gross domestic product (GDP) skyrocketed the oil-dependent economy from 42.3 trillion Nairas to 80.3 trillion Nairas – equivalent to 509.9 billion US dollars. Establishing this new base level included different industries such as film-making, music, airlines, and telecommunication (Adekola, 2014, p. 214). In 2013, Nigeria's nominal GDP was approximately 510 billion US Dollars – 89% larger than previously estimated, and 190 billion US Dollars more than that of South Africa (Els, 2014, p. 1).

MOTIVATION

Every company, whether public or private, has a set of organizational goals that it wants to achieve. In pursuit of these targets, certain measures have to be in place that make it possible to meet these goals. According to Chaudhary and Sharma (2012, p. 31), employees have different likes, dislikes, and distinctive needs that will motivate each individual differently. It is very important that management engage workers in decision-making processes – but, at the same time, create sensible and practical goals that employees can achieve. According to Bashir et al. (2012, p. 13), improved labour performance and organizational productivity hinges on how well employees are rewarded, and how content and emotionally attached they are (Dubrin, 2009, p. 372). Hence, motivation is also part of an important aspect of management in any organization (Chipunza, Samuel & Mariri, 2011, p. 8340). It is natural that people have specific needs that they attempt to satisfy. Unfortunately, employers hypocritically choose to ignore these needs (Cetin, 2013).

MOTIVATIONAL APPROACH BY SOUTH AFRICAN MINES

Most mines recognise the importance of human capital investment in advancing employees' abilities to enhance high levels of employee performance in the workplace. According to Nyamubarwa et al. (2013, p. 120), the human capital approach, through investment in the dimensions of human capital – education, training, and healthcare – can help miners feel that they are valued, improve employee motivation/morale, and realise the workers' full potential. Mining companies regularly put miners through rigorous training programmes to harness their skills and talents, thus improving productivity, quality, and the delivery of social services in the workplace, and promoting self-employment (Lebeloane, 2016, p. 3). Furthermore,

through the Adult Basic Education and Training (ABET) programme, which is accredited by the Mining Qualification Authority (MQA), miners are encouraged to attend literacy and numeracy courses, thereby improving their educational base – their ability to read and write (Mining Qualification Authority, 2015, p. 3). A drawback is that, miners have a habit of to not attending these literacy and numeracy courses.

The issue of remuneration, however, is subject to how organizations use it and other incentive schemes such as performance-based bonuses to inspire and improve mineworkers' job commitment (Manzoor, 2012, p. 38). Monetary schemes are one of many management tools that mining companies use to kerb industrial unrest and alleviate poverty. Furthermore, miners are provided with opportunities to be home owners. The benefits of home-ownership are that they can bring their families from other provinces and countries to stay with them. Secondly, they can be closer to their workplace, which makes travelling time to work manageable. They have access to clean water and sanitation, electricity, and proper road infrastructure.

Mining companies comply with the Underground Mining Regulations, made under Section 82 of the Occupational Health and Safety Act, which ensure that mines create and maintain a safe and healthy working environment for all mining personnel (The Underground Mining Regulations made under Section 82 of the Occupational Health and Safety Act, 2008). These basic human needs are aligned with Abraham Maslow's hierarchy of needs theory (1954), the McClelland needs theory (1976), Alderfer's theory of existence, relatedness and growth (ERG) (1973), and Herzberg's motivator-hygiene theory (1959).

There have also been calls by mining personnel for more transparency within the mineral exploration industry. Mines should endorse a transparency plan that would allow miners to have easy access to information within the organization, as this would empower them. In their study, "Effective motivation practices that could enhance employee performance in the mining industry", du Plessis, Keovilay, Marriot and Seth (2015) found that motivational factors – remuneration, safety, social welfare, supervision, and equity – are the five main factors that motivate mining staff in Laos, New Zealand to perform. Masia and Pienaar (2011, p. 1), in their study, "Unravelling safety compliance in the mining industry: Examining the role of work stress, job security, satisfaction and commitment as antecedents", found that promoting job satisfaction could improve safety compliance in an organization, while other factors such as job insecurity and work-related stress impact negatively on safety.

LINK BETWEEN HUMAN CAPITAL INVESTMENT AND MOTIVATION

Every company, whether public or private, has a set of organizational goals and objectives, that it wants to attain. In pursuit of these targets, there has to be certain measures in place that would make it feasible to achieve these goals and objectives. Most companies recognize the importance of human capital investment in advancement of employees' abilities to induce high levels of employee performance within the workplace.

Human capital dimensions – education, training and healthcare are important if workers are to have the motivation that is required to develop and use their skills and knowledge within the organization. However, education and training are less effective for problems arising from worker's lack of motivation (Yamoah, 2014, p. 4). Yamoah (2014) further argues that well-trained personnel often exhibit high levels of motivation and confidence, attributing it to the organization investing in their ability and development. These well-trained employees tend to be productive and can make discretionary decision-making. An advantage of investment in human development is a possible increment in remuneration, after employees have completed training and education (Dae-Bong, 2009, p. 1). Gross (2015, p. 6) concur with Yamoah (2014) by suggesting that, organizations that invest in human development have high levels of skills, retention and motivation. It is clear that, not only employees' benefit from investment in human capital but also companies benefit as well. Human capital investment and motivation are management concepts that companies use to induce the South African labour markets' abilities through training and development to improve labour and organizational performance (productivity) (Awan & Sarfraz, 2013, p. 81).

Previous studies by (Aarabi, Subramaniam and Abu Baker Akeel, 2013; Chaudhary and Sharma, 2012; Edrak, Ying-Fah, Gharleghi and Seng, 2013; Nyamubarwa et al. 2013); all agree that performance-based compensation or payment (merit pay) is effective in improving employee performance as workers exert more effort in executing their jobs with the expectations of being rewarded. This is aligned to Vroom's expectancy theory (1964). From a managerial perspective, Vroom's expectancy theory contains significant implications and points out several key factors that can be utilized to motivate employees within the workplace by changing an individual's or groups performance-to-reward (Lunenberg, 2011, p. 1).

Many motivational factors play a significant role in the concept of employee motivation. Based on each particular situation, it is imperative that we establish which motivational tool will be more effective (Kalburgi & Dinesh, 2010, p. 152). It is also important to take note that although some motivational tools will work for one company, it does not necessarily mean that they will work for another. Chaudhary and Sharma (2012, p. 30) further suggests that sometimes management fails to recognise the importance of motivation in achieving their mission and ideology or vision. Even when management understands the importance of motivation, they appear to lack the competence to create a workplace that promotes employee productivity. The following specific motivational tools are relevant in improving employee productivity.

Incentive schemes/rewards are tools such pay, bonuses, performance-based payment (merit pay) and promotion that managers can utilize to influence workers behaviour and encourage higher levels of employee performance within the organization (Manzoor, 2012, p. 36). Employees' performance can improve organizational productivity by changing the resource inputs that are required to achieve their projected production outputs. Nevertheless, besides employee performance, there are numerous motivational factors, that could influence organizational productivity and an incentive scheme/reward is one of those factors (Aarabi et al., 2013, p. 302). Arnolds and Venter (2007, p. 21) highlight the importance of managers taking into account rewards that employees might consider motivational. If attention is not paid to this, confusion might arise between motivational strategies managers implement to motivate employees and the preference of motivational rewards these employees expect. This can also result in some serious implications between management and personnel, were even a common ground cannot be achieved in trying to realise the organization's goals and objectives. Ude and Coker (2012) suggest that managers make it a priority to identify significant incentive schemes that will best serve as motivators of employees.

The primary reason why people work is to earn a living. Socio-economic issues drive employees to demand more money. Manzoor (2012, p. 38) maintains that the ultimate enticement is money and in relation to its influential value, no other motivational factor or incentive comes even close to it. The issue of remuneration is subjective, however, organizations (such as mining companies) use it, and other incentive schemes such as performance-based bonuses to inspire and improve mineworkers' job commitment (Manzoor, 2012, p. 38). According to Edrak et al. (2013, p. 97), even though some scholars claim that monetary payment is not directly linked with job satisfaction, performance-based payment (merit pay) on the other hand may lead to improved employee performance. However, were does one draw the line when it comes to provision of unreasonable monetary incentives within an organization. According to Kalburgi and Dinesh, (2010, p. 152), monetary incentives and rewards do not as other research studies suggest, exert as much effort in influencing the level of employees' efficiency and productivity.

Personnel require some sense of long-lasting commitment from companies concerning their job security. Employers who always preach on how dispensable workers jobs or services towards the company, are likely to promote a lack of loyalty, motivation and commitment. This could have a significant impact on company goals and objectives (Nyamubarwa et al., 2013, p. 121).

Employee empowerment is a motivational tool used to create a sense of pride and belonging for employees (Stevenson, 2007, p. 417). Empowered employees tend to exert more effort into their work with a sense of enthusiasm, enjoyment and responsibility (Manzoor, 2012, p. 38). Employees can make decisive decisions without any supervision from management. This will build trust and loyalty between managers and workers. Bashir et al. (2012, p. 3) further explain that empowered workers can execute their work in an efficient and effective way, acquire more knowledge and aid in pioneering organizational systems and products.

Recognition also known as employee acknowledgement is one of many types of incentive schemes. Employee recognition in comparison to other incentive schemes is far more cost effective as it provides a comparatively low-cost but has a sufficient-impact as a reward to employees that are performing at a higher standard within the workplace. Employee recognition can be in a form of acknowledgement for a job well executed; end of the year function were top performers are given prices as a token of appreciation; certificate and gold name plates (Ude & Coker, 2012, p. 35).

Badenhorst, Cant, Cronje, Du Toit, Erasmus, Grobler, Kruger, Machado, Marais, Marx, Strydom & Mpofu, (2004, p. 187) define communication as a process of exchanging information or messages from one individual to another. It is a systematic way that people can convey and express their ideas, intentions, feeling and opinions. Senders convey the message and to effectively communicate they have to know what message they want conveyed (Badenhorst et al., 2004, p. 187). Therefore, emerging from the foregoing discussion above, we can hypothesise that:

$\mathbf{Factor}_2$: Motivation as a factor of productivity.

H_2: The more mineworkers are motivated, the higher the levels of labour and organizational productivity.

RESEARCH METHODOLOGY

The themes of this study included a first independent variable (human capital investment), a second independent variable (motivation), and a dependent variable productivity. This paper adopted a quantitative research strategy. This allowed the author to examine the relationship between human capital investment and motivation versus identified key production variables. Through purposive (non-probability) sampling technique was used to identify a suitable mining organization. A convenient (non-probability) sampling technique, where the researcher conveniently chooses elements who are willing to participate, was used to determine the sample size of this study (Willemse & Nyelisani, 2015, p. 24). Every Monday of each week, one new team from Upper Ground 2 (UG2) Reef or Merensky Reef would attend a five-day training programme at a central training facility. The objective of the programme was to help mineshaft workers to understand some basic principles of the Impala Platinum's operations. These included teaching mineshaft workers the history of the mine, health and safety standards, how to work cohesively as a team, how they could improve their performance to achieve monthly performance-based bonuses, how the organization requires capital in order to function, how losses are incurred, how profits are made, etc. The researcher travelled at least twice a week, on Wednesdays and Fridays, from Johannesburg to Rustenburg. This ensured that at least two different teams that arrived on a Monday and Tuesday were surveyed on a Wednesday; and the new teams that arrived on a Wednesday and Thursday were surveyed on a Friday. Although all of the members were surveyed as a team, it was essential that the respondents complete the questionnaires independently and without any outside influence. Sometimes only one team would arrive for the training; and on a bad day there would be no team. Once all the necessary data had been collected, it was collated, analysed, and presented.

The author derived the data of a primary nature from a structured questionnaire that was aligned with the research main objective, from speaking to mine management and from content analysis. The researcher drew a sample from the population of mining personnel (miners) in a mining house (Impala Platinum) between June and July 2016. The author invited mining staff (miners - conventional stoping) n = 318 out of 868 (workforce) to partake in this study. The table below depicts the gender distribution of miners who participated in this study. The actual number was 279 (96.2%) males and 11 (3.8%) females, who were surveyed using a structured questionnaire that was printed and distributed accordingly. Representing a 33.6% of the total unit of measure. The research questionnaire was designed to ensure that the information provided by respondents was treated with the utmost confidentiality and anonymity. Experts in the field of study, including management and training facilitators of Impala Platinum, validated the questionnaire. This enabled communication to be much easier and miners making less mistakes. There were other mining personal from the same employment rank – development and ventilation who could have been surveyed but

STATISTICAL DATA ANALYSIS

SPSS version 23.0 was performed to measure miners' perception of subsets of human capital investment and motivation against identified key grouping variables of production. Human capital variables – education, training and healthcare. Below is the sample descriptive results of the study.

TABLE 2: DESCRIPTIVE ANALYSIS – HUMAN CAPITAL INVESTMENT (EDUCATION and TRAINING)

Research items	Strongly disagree – Disagree	Neutral	Strongly agree – Agree
B1: Education and training is very important to me.	4 (1.4%)	3 (1.0%)	280 (97.5%)
B2: My company makes sure that I am well trained.	4 (1.3%)	9 (3.1%)	273 (95.4%)
B3: I think education and training makes me work better.	3 (1.0%)	7 (2.4%)	276 (96.5%)
B4: My company supports and motivates me to be trained and educated.	13 (4.5%)	16 (5.6%)	259 (89.9%)

SOURCE: SPSS VERSION 23.0 (2016)

Table 2 above indicated that 97.5% of the respondents' agreed that education (learning) and training (skills development) was important in improving labour performance. 97.6% of the respondents had a positive acknowledgment of health and safety. This yielded a response rate of 98.3% with an average mean of $\bar{x}$ =4.78 with a std. deviation of 0.602 as indicated in table 3 below. The average mean and standard deviation show that a common consensus was reached among the respondents perception of human capital dimensions – education and training.

TABLE 3: DESCRIPTIVE ANALYSIS – HUMAN CAPITAL INVESTMENT (EDUCATION and TRAINING)

Research items	*N*	Mean	Std. Deviation
B1: Education and training is very important to me.	287	4.78	0.602
B3: I think education and training makes me work better.	286	4.67	0.612
B2: My company makes sure that I am well trained.	286	4.62	0.637
B4: My company supports and motivates me to be trained and educated.	288	4.46	0.882

SOURCE: SPSS VERSION 23.0 (2016)

Table 4 below indicated that 97.6% of the respondents had a positive acknowledgment of health and safety. This yielded a response rate of 97.6% with an average mean of $\bar{x}$ =4.82 and a std. deviation of 0.639 indicating that majority of the respondents had a positive acknowledgment of health and safety. However, the results show that 42.7% of the respondents were happy with their monthly salary, 44.5% of the respondents were not happy with their monthly salary, while 12.8% of the respondents were neutral.

TABLE 4: DESCRIPTIVE ANALYSIS – HUMAN CAPITAL INVESTMENT (HEALTH and SAFETY)

Research items	Strongly disagree – Disagree	Neutral	Strongly agree – Agree
B5: Health and safety is important to me.	6 (2.1%)	1 (0.3%)	279 (97.6%)
B6: My work is not dangerous.	164 (59.6%)	16 (5.8%)	95 (34.5%)
B7: I am not afraid to go to work.	30 (10.8%)	21 (7.6%)	227 (81.6%)
B8: I wear protective clothes when I am at work.	2 (0.7%)	0 (0.0%)	281 (99.3%)
B9: My supervisor explains to me step-by-step health and safety measures.	13 (4.6%)	20 (7.0%)	251 (88.4%)

SOURCE: SPSS VERSION 23.0 (2016)

This yielded a response rate of 96.2%, an average mean of $\bar{x}$ =2.89 with a std. deviation of 1.513. The average mean and standard deviation show that respondents are divided on the issue of remuneration as almost half of the respondents were happy, while the other half were not happy.

TABLE 5: DESCRIPTIVE ANALYSIS – HUMAN CAPITAL INVESTMENT (HEALTHCARE and SAFETY)

Research items	*n*	Mean	Std. Deviation
B5: Health and safety is important to me.	286	4.82	0.639
B6: My work is not dangerous.	275	2.58	1.611
B7: I am not afraid to go to work.	278	4.16	1.124
B8: I wear protective clothes when I am at work.	283	4.81	0.444
B9: My supervisor explains to me step-by-step health and safety measures.	284	4.40	0.921

SOURCE: SPSS VERSION 23.0 (2016)

$\mathbf{Factor_1}$: Human capital investment as a factor of productivity.

H_1: The more mineworkers are knowledgeable, highly–skilled, and healthy within the mining company, the higher the levels of labour and organizational productivity.

Human capital investment as a factor of productivity was subjected to the Principal Axis Factoring (PAF), Kaiser-Meyer-Olkin (KMO), Measure of Sampling Adequacy (MSA) and the Bartlett's Test of Sphericity. In the first order of statistical analysis, the researcher subjected 9 items of human capital investment to Principal Axis Factoring (PAF) using SPSS version 23.0. Data suitability was measured before Factor Analysis (FA) could be conducted. After in-depth inspection, the correlation matrix revealed that many coefficients exceeded the recommended standard value of 0.3. The Bartlett's Test of Sphericity was statistically significant as it registered p = 0.000, which indicated sampling adequacy and supported the correlation matrix's factorability, while Kaiser-Mayer-Olkin (KMO) yielded 0.713 above the recommended standard value of 0.6. The output generated from the Principal Axis Factoring (PAC) analysis indicated 3 factors that were above the initial eigenvalue of 1.0 (2.493, 1.321 and 1.061). These 3 factors explained a total of 54.169% of the variance. According to Maree (2014:13), if the Initial Eigenvalue is below 1.0 (it would mean less or no dependency and if more than or equals to, it would mean that there is dependency. This was substantiated by the Screeplot chart, it confirmed 3 factors that exceeded the recommended initial eigenvalue of 1.0 even though graphically it is not that clear. Consensus was to retain 3 of these factors for further analysis (Maree, 2014, p. 219-221).

This sub-section of analysis identified research items of human capital investment that were removed and the effect they had on the research outcomes. **B6** had to be removed from factor 3 as it was the only one loading factor. **B7** was removed as it had a 0.119 communality value below the recommended 0.3 and there was no loading in factor 2 on the factor matrix table that was generated. **B8** had to be excluded as it had a 0.131 communality value below the recommended 0.3 and there was no loading in factor of the rotated factor matrix. This was followed by the exclusion of **B5** as it had a 0.118 communality value below the recommended 0.3. **B8** excluded as it registered a 0.223 communality value below the recommended 0.3 and more.

Ultimately, the researcher subjected 4 research items of human capital investment as a factor of performance to Principal Component Analysis (PCA) using SPSS version 23.0. Data suitability was measured before Factor Analysis (FA) could be conducted. After an in-depth review, the Correlation Matrix (*human capital investment components*) revealed that many of the coefficients exceeded the recommended standard value of 0.3. The Bartlett's Test of Sphericity was statistically significant as it registered p = 0.000, which indicated sampling adequacy and supported the correlation matrix's factorability, while Kaiser-Mayer-Olkin (KMO) yielded 0.698 above the recommended cut off value. From the statistical output generated from the Total Variance Explained and using Kaiser-Mayer-Olkin (KMO), the study retained 1 factor that was above the Initial Eigenvalue of 1.0 (dependency) (2.086). This 1 factor explained a total shared variance of 52.151%. This was substantiated by the Screeplot chart that clearly confirmed 1 factor that exceeded the recommended initial eigenvalue of 1.0. A decision was reached to retain 1 factor for further analysis. This factor contained 4 research items that were employed to test if there is a relationship between research items contained in human capital investment (Maree, 2014, p. 219-221). The Component Matrix could not be rotated as research items were highly correlated. The empirical results suggest that there is a positive relationship human capital investment and productivity. The Cronbach Alpha was below the recommended reliability alpha value of 0.7. Human Capital Investment as a factor registered a below reliability alpha value of 0.675. A scale with 4 research items reduced the reliability alpha value significantly. Based on what has been discussed, it was more appropriate to report the mean inter-correlation for the 4 research items of human capital investment as it is common to have a below 0.7 Cronbach alpha value when dealing with research items that are below 10. The inter-item correlations indicated a 0.357 value, which was between the recommended ranges (0.2 to 0.4) (Maree, 2014, p. 219-221).

$\mathbf{Factor_2}$: Motivation as a factor of productivity.

$\boldsymbol{H_2}$: The more mineworkers are motivated, the higher the levels of labour and organizational productivity.

Motivation as a factor was subjected to the Principal Axis Factoring (PAF), Kaiser-Meyer-Olkin (KMO), Measure of Sampling Adequacy (MSA) and the Bartlett's Test of Sphericity. The first order of analysis was conducted and the researcher subjected 16 research items of motivation to Principal Axis Factoring (PAF) analysis using SPSS version 23.0. Data suitability was also measured before Factor Analysis (FA) could be conducted. After a comprehensive inspection, the correlation matrix (motivation components) discovered that many coefficients exceeded the recommended standard value of 0.3. The Bartlett's Test of Sphericity was statistically significant as it registered p = 0.000, which indicated sampling adequacy and supported the correlation matrix's factorability, while Kaiser-Mayer-Olkin (KMO) yielded 0.833 above the recommended standard value of 0.6. Based on the statistical output generated from the

Principal Axis Factoring (PAF) analysis using SPSS version 23.0, the total variance explained extracted 4 factors that were above the initial eigenvalue of 1.0 (5.233, 1.794, 1.395 and 1.106) of total variance explained. These 4 factors explained a shared total variance of 48.042%. This was substantiated by the Screeplot chart as it confirmed 4 factors that exceeded the recommended initial eigenvalue of 1.0 even though graphically it is not that clear. Common consensus was to retain 4 of these factors for further statistical analysis. The pattern matrix could not be rotated as research items were highly correlated and some of the research items were not loaded (Maree, 2014, p. 219-221).

This sub-section of analysis identified research items of motivation that were removed and the effect they had on the research outcomes. **C16** had to "be removed" as it had a 0.160 the lowest loading in factor 2. **C21** "was removed" as it had a 0.260 communality value below the recommended 0.3 and had no loading in factor 2. **C17** had to "be removed" as it had a 0.215 communality value below the recommended 0.3 and had the lowest loading of 0.342 in factor 4. Ultimately, the researcher subjected 13 research items of human capital investment as a factor of productivity to Principal Component Analysis (PCA) using SPSS version 23.0. Data suitability was measured before Factor Analysis (FA) could be conducted. After an in-depth inspection, the correlation matrix (motivation components) discovered that many of the coefficients exceeded the recommended value of 0.3. The Bartlett's Test of Sphericity was statistically significant as it registered p = 0.000, which indicated sampling adequacy and supported the correlation matrix's factorability, while Kaiser-Mayer-Olkin (KMO) yielded 0.821 above the recommended standard value of 0.6. Based on the statistical output generated from the Principal Axis Factoring (PAF) analysis using SPSS version 23.0, the total variance explained revealed 3 factors that were above the Initial Eigenvalue of 1.0 (4.705, 1.733, and 1.327). These 3 factors explained a total of 50.221% of the shared variance. This was substantiated by the Screeplot chart as it confirmed 3 factors that exceeded the recommended Initial Eigenvalue of 1.0 even though graphically it was not that clear. Common consensus was to retain 3 of these factors for further analysis (Maree, 2014, p. 219-221). A Pattern Matrix Extraction Method (Principle Axis Factoring), Rotation Method: OBLIMIN with KAISER NORMALIZATION. A Factor Correlation Matrix between Job Satisfaction (JS), Adequate Remuneration (AR), and Job Security (JS) contained in Motivation as a factor of productivity consistently yielded (r = 1.000s) (Maree, 2014:219-221). Job Satisfaction (JS), Adequate Remuneration (AR), and Job Security (JS) all support motivation as a factor of productivity. The Cronbach Alpha was above the recommended reliability alpha value of 0.7 and more. The Motivation factor registered an above reliability alpha value of 0.858. The Cronbach Alpha for Job Satisfaction was 0.834 above the recommended reliability alpha value of 0.7. Adequate Remuneration was 0.821 and Job Security was 0.835.

RESEARCH FINDINGS AND DISCUSSIONS

The main empirical results of this study in terms of the theoretical background, suggest that human capital investment (through education, training and healthcare) and motivationally-inclined incentives improve labour and organizational productivity. The aforementioned results corroborate the previous findings that substantiate the significant of investment in human development and employee motivation to improve labour performance and to achieve high levels of productivity, optimise profit, and achieve long-term competitive advantage. For instance, a study by Awan and Sarfraz (2013) found that human capital investment has a strong relation with firm performance and employee's satisfaction mediates the process between both variables. Ude and Coker (2012) found that motivationally-inclined incentives have high significant relationship with employee motivation and productivity. It is important to note that there were other latent variables – the type of reef mined, depth below surface, travelling time, and logistics – that might have worked against the improvement in the mineworkers' labour performance.

LIMITATIONS AND FUTURE RESEARCH

It important to acknowledge that this study was conducted during a time, when the mineral exploration industry was going through a lot of turmoil and great uncertainty. This study focussed on one occupational mining category (conventional stoping) as a single unit of analysis. This project did not cover the entire South African mineral exploration industry and as it was limited only to one platinum mining organization, which further restricts the study's generalisability to other mining companies and industries. Although the study demonstrates internal validity, this opens opportunities for future research studies to be conducted on other mining occupations and industries, to further alleviate the generalizability across all mining companies and mining industries in South Africa, and across the African continent.

PRACTICAL IMPLICATIONS

From a practical perspective, the following managerial implications arise:

Based on empirical findings, it can be reasoned that mining houses cannot dismiss the awareness and significance of investing in human development and motivation to better enhance labour productivity, improve organizational productivity, optimise profitability and achieve competitive advantage.

Mining houses should consider including mining personnel in structuring flexible remuneration packages that will further induce mineworkers to exert more effort into their work. This will make mineworkers' feel more appreciated, and that they are part of an essential system that values its workforce. In addition, this will kerb industrial unrests within the mining industry.

Mine management should ensure that there is complete transparency, and that mineworkers are informed of any critical decisions that might impact on their future. This would indicate to miners that they are adding value and are considered an essential part of Impala Platinum, and not just a cost to the organization.

The industry has the reputation of being dangerous. As a result, it attracts fewer and fewer female miners. Another perception is that, for one to perform underground, one needs to be masculine – that is, strong and rough. Mining companies could challenge the masculine stereotype by employing more female miners. From a general perspective, this could change the whole mineral exploration industry, particularly with respect to safety.

The South African Mining Charter and the mining companies should make it compulsory for mining personnel to own their own homes, even if they are in hostels. This would indicate to the miners that mining companies care for their social development and well-being. This would also ensure that mineworkers are closer to their workplaces, thus contributing to employee motivation, improved labour performance, enhanced organizational productivity, and optimised profitability.

CONCLUSION

Broadly speaking, this paper has contributed significantly towards the field of human capital investment, motivation and productivity by targeting mining personnel (miners) within the mineral exploration industry in South Africa. Furthermore, this study has provided a sound and compressive understanding of literature, theory and empirical findings to mining organizations. This study sought to examine the effect of human capital investment and motivation on mineworkers' productivity within a South African Platinum mine context. Stemming from the theoretical evidence and empirical research findings, it can be deduced that human capital investment and motivation have a direct impact on labour and organizational productivity. The fundamental value of this paper was to make mining companies (such as Impala Platinum) aware that sustainable development in miners' abilities within the mineral exploration industry is feasible, through an integration of human capital investment, motivation, and performance (productivity).

REFERENCES

Aarabi, M.S., Subramaniam, I.D., & Abu Baker Akeel, A.B.A. (2013). Relationship between Motivational Factors and Job Performance of Employees in Malaysian Service Industry. *Asian Social Science*, 9(9), 301-310.

Adekola, I.A. (2014). Public Investment in Human Capital and Economic Growth in Nigeria: Analysis on Regime Shifts. *Journal of Economic and Development Studies*, 2(2), 213-23.

Arnolds, C.A., & Venter, D.J.L. (2007). The Strategic Importance of Motivational Rewards for Lower-Level Employees in the Manufacturing and Retailing Industries. *SA Journal of Industrial Psychology*, 33(3), 15-23.

Awan, M.A.S., & Sarfraz, N. (2013). The Impact of Human Capital on Company Performance and The Mediating Effect of Employee's Satisfaction. *Journal of Business and Management*, 8(2), 76-82.

Badenhorst, J.A., Cant. M.C., Cronje. J., Du Toit. G.S., Erasmus. B.J., Grobler. P.A., Kruger. L.P., Machado. R., Marais. K., Marx., Strydom. J.W., & Mpofu. R.T. (Editors). (2004). *Introduction to Business Management*. Sixth edition. Cape Town South Africa: Oxford University Press.

Barr, R., & Cook, R.E. (2009). Mining for operational excellence. Available from: http://iom.invensys.com/EN/pdfLibrary/NewsArticle_Invensys_MiningforOperationalExcellence_11-09.pdf [Accessed 20 August 2015].

Bashir, I., Ahmed, K., & Hashim, R. (2012). Correlation between human capital and financial capital in developing countries: Case of Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 4(2), 1-13.

Bhoola, U. (2011). National Labour Law Profile: South Africa. Available from http://www.ilo.org/ifpdial/information-resources/national-labour-law-profiles/WCMS_158919/lang--en/index.htm [Accessed 25 February 2015].

Boroujerdi, R.Y., Siadat, S.A., Hoveida, R., & Khani, S. (2014). The study of the nature of human capital management and its strategic role in achieving of competitive advantage for the organization. *International Journal of Scientific and Research Publications*, 4(5), 1-5.

Cairns, P. [23 September 2015]. South Africa's 12 top priorities. The citizen, page 22.

Cetin, I. (2013). Motivation and Its Impact on Labour Productivity at Hotel Business "Conceptual Study". *International Journal of New Trends in Arts, Sports & Science Education*, 2(1), 70-79.

Chaudhary, N., & Sharma, B. (2012). Impact of Employee on Performance (Productivity) In Private Organization. *Electronic version, International Journal Business of Trends and Technology*, 2(4), 29-35.

Chipunza, C., Samuel, O.M., & Mariri, T. (2011). Leadership style, employee motivation and commitment: Empirical evidence from a consolidated retail bank operating in a depressed economy. *African Journal of Business Management*, 5(20), 8337-8346.

Colombo, E., & Stanca, L. (2008). The Impact of Training on Productivity: Evidence from a Large Panel of Firms. Available from: https://ideas.repec.org/p/mib/wpaper/134.html [Accessed 17 March 2017].

Dae-Bong, K. (2009). The 3rd OECD World Forum on Statistics, Knowledge and Policy Charting Progress, Building Visions", Improving Life: Human Capital and Its Measurement. Available from: http://www.oecd.org/site/progresskorea/44109779.pdf [Accessed 13 April 2015].

Du Plessis, A.J., Keovilay, P., Marriot, J.R., & Seth, N. (2015). Effective motivation practices that could enhance employee performance in the mining industry. Available from: http://unitec.researchbank.ac.nz/handle/10652/3374 [Accessed 3 March 2017].

Dubrin, A. (2009). *Essential of Management*. Eighth edition. United States of America: Cengage Learning.

Edrak, B.B., Ying-Fah, B.C., Gharleghi, B., & Seng, T.K. (2013). The Effectiveness of Intrinsic and Extrinsic Motivations: A Study of Malaysian Amway Company's Direct Sales Forces. *International Journal of Business and Social Science*, 4(9), 96-103.

Els, F. (2014). Nigeria, South Africa partner on artisanal gold mining. Available from: http://www.mining.com/nigeria-south-africa-partner-to-develop-gold-mining-nigerian-news-from-leadership-newspapers-87749/ [Accessed 17 September 2015].

Greasley, A. (2009). *Operations Management*. United States of America: John Wiley and Sons.

Gross, R. (2015). HUMAN CAPITAL INVESTMENT THEORY AND THEORY OF REASONED ACTION: THE INFLUENCE OF ORGANIZATIONAL TRAINING ON EMPLOYEE TURNOVER. *International Journal of Economics, Commerce and Management*, 3(2), 1-11.

Hansson, B., Johanson, U., & Leitner, K. (2004). The impact of human capital and human capital investments on company performance. Evidence from literature and European survey results. Available from: http://www.cedefop.europa.eu/files/BgR3_Hansson.pdf [Accessed 17 March 2017].

Heizer, J., & Render, B. (2006). *Operations Management*. Eighth edition. United States of America: Pearson Prentice Hall.

Kalburgi, M.J., & Dinesh, G.P. (2010). Motivation as a Tool for Productivity in Public Sector Unit. *Asian Journal of Management Research*, 1(4), 32-39.

Kuranchie-Mensah, E.B., & Amponsah-Tawiah, K. (2016). Employee Motivation and Work Performance: A competitive Study of Mining Companies in Ghana. *Journal of Industrial Engineering and Management*, 9(2), 255-309.

Lebeloane, M. (2016). Human Capital Development Sibanye Rustenburg Platinum Conventional Campus. Cadetship Training Recruitment Procedure. [Accessed 08 March 2017].

Lunenberg, F.C. (2011). Expectancy Theory of Motivation: Motivating by Altering Expectations. *International Journal of Management, Business, and Administration*, 15(1), 1-6.

Manzoor, Q. (2012). Impact of Employees Motivation on Organizational Effectiveness. *European Journal of Business and Management*, 3(3), 1-12.

Maree, K. (Editor). (2014). *First Steps in Research*. (Revised edition.). Pretoria South Africa: Van Schaik.

Marimuthu, M., Akokiasamy, L., & Ismail, M. (2009). Human capital development and its impact on firm performance: Evidence from developmental economics. *The Journal of International Research*, 2(8), 265-272.

Masia, U., & Pienaar, J. (2011). Unravelling safety compliance in the mining industry: examining the role of work stress, job insecurity, satisfaction and commitment as antecedents. *SA Journal of Industrial Psychology/SA Tydskrif vir Bedryfsielkunde*, 37(1), 1-10.

Mbwaalala, R.N. (2013). Can labour law succeed in reconciling the rights and interests of labour broker employees and employers in South Africa and Namibia?. Available from: http://etd.uwc.ac.za/xmlui/bitstream/handle/11394/3006/Mbwaalala_MPHIL_2013.pdf?sequence=1 [Accessed 9 September 2015].

Mining Qualification Authority (MQA) Annual Report (2014 – 2015). Available from: http://www.mqa.org.za/sites/default/files/MQA%20Annual%20Report%202015.pdf [Accessed 28 August 2015].

Motsoeneng, L., Shultz, C., & Bezuidenhout, A. (2013). Skills Needed by Engineers in the Platinum Mining Industry in South Africa. Available form: http://uir.unisa.ac.za/bitstream/handle/10500/13876/13R0045M%20Picmet%20Artikel_Motsoeneng.pdf?sequence=1 [Accessed 25 June 2015].

Muogbo, U.S. (2013). The Impact of Employee Motivation on Organizational Performance (A Study of Some Selected Firms in Anambra State Nigeria). *The International Journal of Engineering and Science*, 2(7), 70-80.

Nyamubarwa, W., Mupani, H., & Chiduuro, C. (2013). An analysis of the Human Resource practices in the mining industry in Zimbabwe's Midlands Province: A relook at the Resource Based View of managing Human Resources. *Journal of Humanities and Social Science*, 17(1), 116-123.

Olayemi, O.S. (2012). Human Capital Investment and Industrial Productivity in Nigeria. *International Journal of Humanities and Social Science*, 2(16), 298-307.

Raineri, A. (2016). Linking human resources practices with performance: the simultaneous mediation of collective affective commitment and human capital, *The International Journal of Human Resource Management*, DOI: 10.1080/09585192.2016.1155163.

Ravi, T.S. (2015). Impact of labour incentives on productivity in selected Chennai-based manufacturing companies. Abhinav International Monthly Refereed Journal of Research in Management & Technology, 4(2), 22-32.

Rusinovci, X. (2015). The effects of persistent training and development on personnel performance and productivity. *International Journal of Management and Business Economics (IJMBE)*, 4(4), 104-112.

Saunders, I. (2013). The South African labour market: All the facts. Available from: http://groundup.org.za/article/south-african-labour-market-all-facts_842 [Accessed 6 August 2015].

Schultz, W.T. (1971). *Investment in Human Capital: The Role of Education and of Research*. New York: Free Press.

Shomos, A., (2010). Links Between Literacy and Numeracy Skills and Labour Market Outcomes, Productivity Commission Staff Working Paper, Melbourne, August.

South African Institute of Race Relations (SAIRR): Billions lost due to strike. Available from: http://www.iol.co.za/business-report/companies/sa-mines-lost-billions-during-strikes-1498824 [Accessed 11 April 2013].

Stevenson, W.J. (2007). *Operations Management. International Student Edition with Global Readings*. Ninth edition. Avenue of the Americas, New York: McGraw-Hill/Irwin.

Twala, C. (2014). The Marikana Massacre: A Historical Overview of the Labour Unrest in the Mining Sector in South Africa. *South African Peace and Security Studies*, 1(2), 61-67.

Ude, U., & Coker, M.A. (2012). Incentive Schemes, Employee Motivation and Productivity in Organizations in Nigeria: Analytical Linkages. *IOSR Journal of Business and Management (IOSRJBM)*, 1(4), 32-39.

Underground Mining Regulations made under Section 82 of the Occupational Health and Safety Act. S.N.S. 1996, c. 7. O.I.C. 2008-306 (June 3, 2008, effective August 1, 2008), N.S. Reg. 296/2008. As amended to O.I.C. 2015-96 (March 31, 2015, effective April 1, 2015), N.S. Reg. 140/2015. Available from: https://novascotia.ca/just/regulations/regs/ohsmine.htm. [Accessed 28 November 2016].

Willemse, I., & Nyelisani, P. (2015). *Statistical Methods and Calculation Skills*. Fourth edition. Cape Town: Juta and Company (Pty) Ltd.

Yamoah, E.E. (2014). The Link between Human Resource Capacity Building and Job Performance. *International Journal of Human Resource Studies*, 4(3), 139-146.